



## *Liparis tortilis* (Orchidaceae), a new species from south Western Ghats, India

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### General Note

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### ABSTRACT

A distinct new species of *Liparis*, *L. tortilis* (Orchidaceae) is described based on samples collected in the Wayanad Forests of southern Western Ghats, India. A botanical description, photographs of the new taxon, information about the habitat and its conservation status are also provided.

**Keywords:** *Liparis tortilis*, Orchidaceae, new distribution, India, taxonomy

## 1. INTRODUCTION

*Liparis* Richard is a large cosmopolitan genus of about 480 species, reported in tropical Asia, Malesia, eastern Australia, the Pacific Islands (including Hawaii and Tahiti), Madagascar, Africa, subtropical and tropical Americas, temperate Europe, Asia and North America (Damian & Ormerod 2016). *Liparis* plants are characterized by terrestrial, lithophytic, or epiphytic; rhizomatous; and, rarely, mycotrophic, and their leaves are reduced to scales, flowers usually have narrow linear petals; a larger and unlobed lip that is incurved and divided to the hypochile and the epichile; an incurved-arcuate, winged column; and four pollinia in two pairs, with each pair having a small viscidium (Chen *et al.* 2009; Su *et al.* 2014). This genus contains 51 species in India, of which 11 species in Kerala (Misra 2007; Sasidharan 2013). Besides that, Salim (2015) recently added *Liparis sanamalabarica* P.M.Salim, as new from the Kerala part of southern Western Ghats.

Botanical explorations in the forests of Wayanad District in Kerala, part of south Western Ghats, during 2016–2018, yielded some interesting specimens of the genus *Liparis*. Critical analysis of the literature as well as of herbarium specimens revealed that some of the collected specimens do not match any of the described species. These specimens are considered to be sufficiently distinct to warrant taxonomic recognition as a new species and are here described and illustrated as *Liparis tortilis*.

## 2. *Liparis tortilis* P.M. Salim & J.Mathew, *sp. nov.* (Fig. 1: A – H)

TYPE: India. Kerala, Wayanad district, Aranamala, altitude 895 m a. s. l., 10 July 2018, PMS & J.Mathew 4464 (holotype: KUBH! – Kerala University Herbarium, Thiruvanthapuram, Kerala, India ; isotype: KUBH). – PARATYPE: Same locality, 11 August 2016, PMS & VB 4465-4467 (KUBH!).

### Etymology

The specific epithet '*tortilis*' refers to the spirally twisted inflorescence of the new species.

Herbs, terrestrial. Pseudobulbs sub-ovoid, 1.7–2.5 × 1.2–1.5 cm, noded. Leaves 2, subsessile, base enclosed by two greenish brown cylindric-sheaths, stem-like, 2.5–10 cm; blade ovate-elliptic, 6–12 × 4–5 cm, margin entire, apex acuminate. Inflorescence 20–26 cm long; four angled and twisted, rachis with 14–18 flowered; floral bracts lanceolate, 3–4 mm. Flowers full open. Sepals, petals and column pale green in colour, lip greenish with slight purplish streak in center; pedicel and ovary 1–1.2 cm. Dorsal sepal narrowly linear, margin revolute to cylindric, 7–7.5 × 0.9–1.2 mm, apex obtuse; lateral sepals oblong, strongly curved backward, 5–5.5 × 2.1–2.3 mm, apex obtuse. Petals narrowly linear, margin revolute to linear, 5–6 × 0.5–0.6 mm; lip obcordate with an apical notch, strongly deflexed, sides slightly serrated, 4–5 × 3–3.5 mm, with a two-lobed callus at base. Column upper part arcuate, 3–3.5 mm long, with a lamellae extending from its base to near stigma along centre way, base of lamellae fused to the base of the lip for 0.8–1 mm, and with widened wings on both sides of the stigma. Four pollinia in two pairs, waxy, elongate-obovoid, yellow in colour, bilaterally flattened without a caudicle or viscidium. Capsule ellipsoid. Flowering and fruiting June–July.

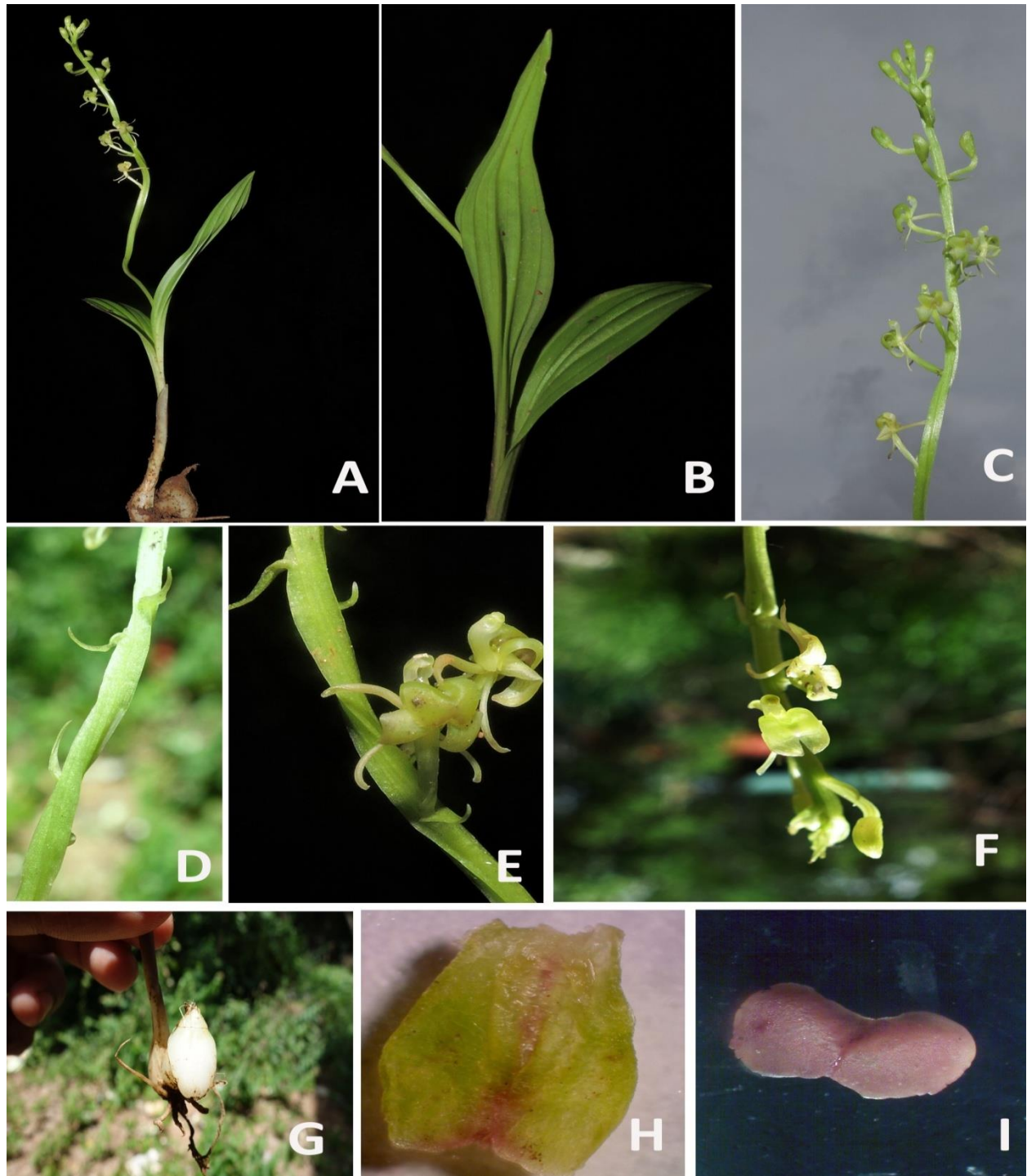
### Distribution and Habitat

*Liparis tortilis* found in the montane grassland forest ca. 895 m. of the Aranamala Hills of Wayanad District in Kerala part of Western Ghats, India. Grows in association with *Dienia ophrydis* (Koenig) Ormerod, *Arundinella ciliata* (Roxb.) Nees ex Miq., *Chrysopogon hackelii* (Hook.f.) C.E.C. Fisch., *Desmodium repandum* (Vahl) DC. and *Leucas ciliata* Benth. ex Wall. A population of 10 plants was observed at the type locality.

### Notes

*Liparis tortilis* is morphologically similar to *L. odorata* (Willd.) Lindl., but differs from that species in having: two leaves (more than two leaves in *L. odorata*); spirally twisted inflorescence (erect, straight inflorescence in *L. odorata*); green colour flowers (yellow to purple colour in *L. odorata*), and obcordate lip with an apical notch (hastate and emarginated lip in *L. odorata*). It is noteworthy that *Liparis tortilis* is the only species of the genus with twisted inflorescence. In our opinion all these characters give good premises for describing *Liparis tortilis* as separate species.

Field surveys have located about ten individuals within the Aranamala Hills covering an area of 50 km<sup>2</sup>. The threat status of this species has been assigned as 'Critically Endangered' as per the guidelines of IUCN (2011). Based on the above observations, adequate measures should be adopted to ensure the protection of this species in its natural habitat. Moreover, further surveys of this species are required. Apart from habitat destruction caused by anthropogenic intervention and wild fires during the summer, no other specific threats were determined during the field studies.



**Figure 1** *Liparis tortilis* Salim P.M. & J. Mathew (A – H). – **A**: Whole plant. – **B**: Abaxial leaf surfaces. – **C**: Inflorescence. – **D & E**: Twisted portion of inflorescence. – **F**: A reverted flower twig, see the colour. – **G**: Pseudo bulb. – **H**: Lip (photo from spirit material). – **I**: Lip of *Liparis odorata*.

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**Conflict of Interest:** The authors declare that there are no conflicts of interests.

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